206-EMD-001

ECS Maintenance and Development Project

Risk Management Plan for the EMD Project

December 2003

Raytheon Company
Upper Marlboro, Maryland

Risk Management Plan for the EMD Project

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Preface

This document is a formal contract deliverable. It requires Government review and approval within 20 business days. Changes to this document will be made by document change notice (DCN) or by complete revision.

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Revision History

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Abstract

This document defines the Contractor's approach to managing risk on the ECS Maintenance and Development (EMD) Program. The plan identifies who will be responsible for managing risks, defines methods for assessing risks, defines the means for monitoring and controlling program risks, identifies tools to be used, and describes risk reporting requirements. Finally, this document provides a high level description of the Contractor's approach to disaster recovery planning for the EMD Development Facility.

Keywords: EOSDIS, EMD, Risk, Program-Management

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Abbreviations and Acronyms

1. Introduction

1.1 Identification

This document is Item 006 of the Contract Data Requirements List (CDRL), whose requirements are specified in Data Item Description (DID) EMD-RMP-6 and is a required deliverable under the Earth Observing System Data and Information System (EOSDIS) Core System Maintenance and Development Contract (NAS5-03098).

1.2 Scope and Purpose

This document defines the Contractor's approach to managing risk on the EMD Program. The scope of the EMD Risk Management Plan consists of identification, assessment, mitigation, and monitoring of risks related to the execution and support of the project that are within its ability to influence or moderate. Risk mitigation activities are constrained within project schedule, budget, and requirements. In addition, per Section 2.1.1 of the EMD Task Order 101 Statement of Work, this document describes the Contractor's approach to disaster recovery for the EMD Development Facility.

The purpose of the plan is to provide guidance to EMD program staff in the identification, definition, assessment, and evaluation of risks, as well as the development and execution of risk mitigation plans. The Plan explains the Contractor's risk management methodology, with the following specific objectives:

- Identify who will be responsible for managing risks.
- Define methods for assessing risk.
- Establish the process for mitigating the risk to an acceptable level within cost, schedule, and performance constraints.
- Define the means for monitoring, tracking, and controlling project risk.
- Define how the risk management process will be integrated with other project processes.
- Identify tools to be used.
- Describe the data to be collected.
- Define reporting requirements throughout the project structure.

1.3 Status

NASA requires that this document be delivered once, four months after Task 101 award. In compliance with Raytheon's processes, the document will be reviewed and maintained throughout the life of the project and updated if there are changes in the risk management process.

1.4 Organization

Section 1 describes the scope, purpose, status, and organization of the document. Section 2 describes other referenced or parent documents. Section 3 provides the EMD Risk Management Plan process. Section 4 describes the Contractor's approach to disaster recovery for the EMD Development Facility. Appendix A provides additional information on risk assessment, including risk forms and risk assessment criteria.

2. Related Documentation

2.1 Parent Documents

The parent documents are the documents from which the scope and content of the EMD Risk Management Plan are derived.

	EMD Task 101Statement of Work for ECS SDPS Maintenance
108-EMD-001	EMD Program Management Plan

2.2 Applicable Documents

The following documents are referenced within the EMD Risk Management Plan, or are directly applicable, or contain policies or other directive matters that are binding upon the content of this volume.

225-CD-105	Security Contingency Plan for Science Systems (NPG 2810.1 Version) PVC/VATC
18-0-4	Disaster Recovery Plan (Landover Facility Procedure)

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3. Risk Management Process

3.1 Risk Management Process Overview

The standard Raytheon risk management process is a five-step process as shown in the Figure below. It provides a means for tailoring the overall risk process to suit project needs, identifying and characterizing risks, assessing and prioritizing risks, mitigating risks, and tracking and evaluating risk mitigation and process performance. This process is the basis for the EMD Project risk management process.

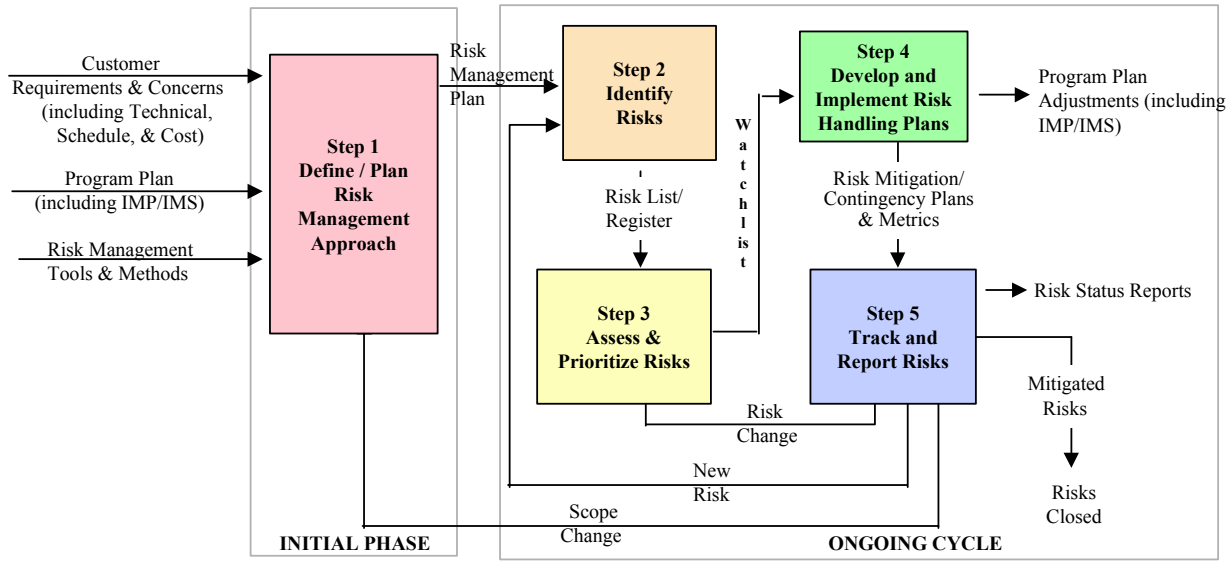

Figure 3-1. Raytheon's 5-Step Risk Management Process

Some key points to remember about the five-step risk management process are that it encourages tailoring of the process to fit the needs of each Task and is employed throughout the entire EMD Project.

Risk management is integrated into all levels of the EMD Project as shown in the Figure below. Risks are integrated across the teams and flowed upward through the organization to the Program Manager and Senior Management. The flow of risk data starts with risk identification and assessment at staff level. Any staff member can nominate a risk to the Risk Management Board to be included in the project risk database. Once accepted by the Risk Management Board, risks are entered into the project risk database and mitigation plans are developed to reduce or eliminate the impact of the risks to the project. The Program Manager oversees the risk management process and applies resources towards mitigating project risks where appropriate. Senior Management has visibility to the project risks during periodic project

reviews. Direct management involvement may be required to determine project priorities and provide additional resources to mitigate project risk.

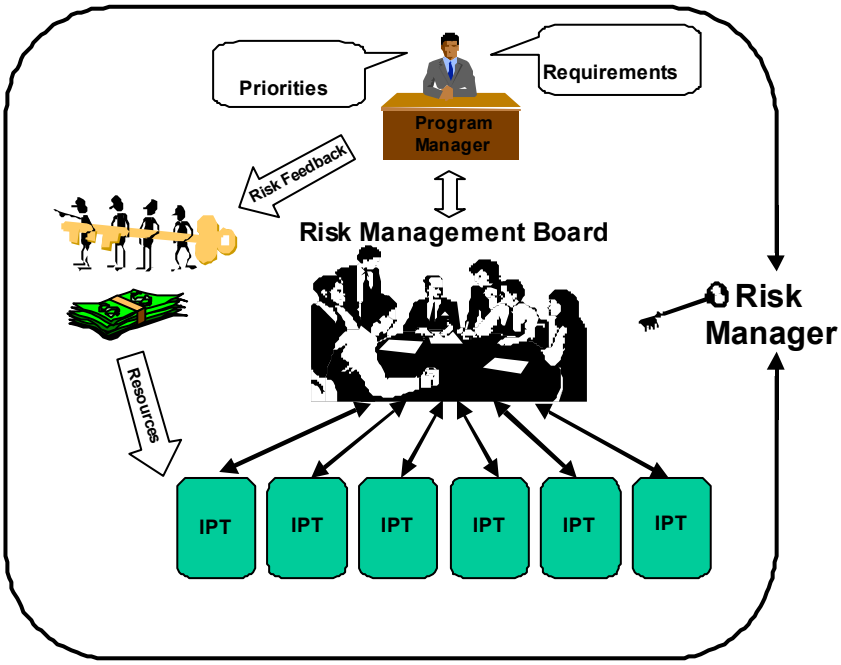

Figure 3-2. EMD Project Risk Management Organization

3.2 Risk Management Roles and Responsibilities

3.2.1 Integrated Product Teams

On the EMD Project, each Task Order is performed by an Integrated Product Team (IPT). The Program Management Team, a Cross-Product Team (CPT), manages across all of the IPTs. Task 101, Sustaining Engineering of ECS SDPS, is large enough to have multiple teams within its overall IPT structure: the Custom Code Maintenance Team, the COTS Maintenance Team, the Deployment Team, and the DAAC Support Team. Other examples of Cross-Product Teams, which work across Task Orders, include the Integration and Test CPT and the Installation CPT.

IPT and CPT members are the primary identifiers of risks. Each IPT and CPT is empowered to identify, assess, mitigate, and track the risks associated within their scope of authority under the guidance of the Risk Management Board and the Program Manager. Risk will be an agenda item in status meetings with the NASA customer, such as the Daily Status Review (DSR) and the Program Management Review (PMR), to encourage the identification of new risks, monitor existing risks, and track progress of mitigation activities and plans.

Each team is responsible for mitigation of their risks that are assessed as medium and high. For risks that affect a team but have mitigation activities that fall outside the scope of the team, approval from the Risk Management Board must be received prior to implementation.

The risk owner is responsible for coordinating the risk activity within his or her team, providing the team's risk data to the Risk Management Board, monitoring risk assessment status, and reporting progress on risk mitigation activities and plans.

3.2.2 Risk Management Board (RMB)

The Risk Management Board is responsible for implementing and monitoring the risk management process at the project level, integrating and normalizing risks across all teams, encouraging open communication of risk information, incorporating risk information into the decision process, reviewing the risk management plan, making schedule, financial, or contractual change recommendations to program management resulting from approved mitigation plans, and assessing the close-out of risks. Membership on the board includes, but is not limited to, the IPT leads, Risk Manager, and Program Manager.

The RMB shall convene monthly, or more frequently, if needed. The RMB members shall decide on a regular meeting day (e.g., the 2nd Thursday of every month), and publish it on the project's meeting schedule. Meetings can be canceled when all of the following conditions exist:

- No new medium or high risks have surfaced from the teams, and
- Reassessments have not increased the risk level of any risk owned by the teams, and
- All teams are actively practicing risk management as evidenced by changes to at least one of the following types of risk data within the past 2 months:
    - New risks have been identified
    - Existing risks have been reassessed
    - Mitigation plans have been updated

The Risk Manager shall coordinate and facilitate the meetings, generate agendas, publish minutes, and document action items. The RMB meeting shall follow the agenda below:

- Review outstanding action items.
- Each IPT lead presents a summary of their risk status and recent changes to the risk data.
- Assign or approve the exposure assessment of each new medium or high risk identified by the teams. In doing so, the RMB will be looking for:
    - Common risks across multiple teams
    - Cumulative affects of similar risks in multiple teams
    - Potential affects of risks and mitigation plans on more IPTs than cited in the data
    - Risks requiring additional commitment of resources to resolve
- Review mitigation/contingency plans submitted by the IPTs and compile a list of required/recommended changes to the plans.
- Define changes to team budgets and to the master schedule, if needed.
- Define other changes to be flowed down (quality, technical, logistics, etc.)
- New action items defined

3.2.3 Program Manager

The Program Manager is accountable for all EMD Project risks and therefore responsible for getting the commitment of all participants to this process. The Program Manager assigns a Risk Manager to be the focal point for risk identification, tracking, and reporting. Since risk mitigation activities affect the project plan (and therefore affect performance, cost, or schedule), the Program Manager approves any plan adjustments that are outside the scope of an individual IPT. The Program Manager must approve any unplanned expenditures funded from program management reserve that are applied to risk mitigation activities and contingency plans.

The Program Manager is responsible for approving the Risk Management Plan and for providing support resources to the IPTs including training in risk management and project-level tracking and reporting. Any adjustment to priorities, approving closure of risks that cross IPTs, or resolution of process or progress issues elevated by the Risk Manager or Risk Management Board is also the responsibility of the Program Manager. Customer/stakeholder participation in the risk process will be handled through the Program Manager.

3.2.4 Risk Manager

The Risk Manager has the primary responsibility for implementing the disciplined process described in this plan. However, the IPT leaders share responsibility for ensuring that risks are identified, assessments are performed by appropriate subject matter experts, and mitigation plans are executed.

The Risk Manager leads and facilitates the risk management process to assure implementation of a consistent and disciplined process, leads risk identification, assessment and prioritization at all IPT levels, assists in development and evaluation of risk mitigation/contingency plans, tracks mitigation progress, reports project level risk status, collects, reports, and distributes risk data, and provides additional risk analyses to support the program management decision making process. The Risk Manager maintains the risk management database and provides risk reports to the IPTs, Risk Management Board, and Program Manager in preparation for team meetings and project reviews.

The Risk Manager in conjunction with the Risk Management Board also performs the important function of integrating and normalizing risks across all IPTs to create an accurate picture of risk status across the project. Integrating risks consists of consolidating duplicated or related risks across IPTs, to ensure a project perspective. “Normalizing” risks consists of trying to ensure that assessments are performed using the same scales across IPTs. In other words, each IPT has a tendency to see risks affecting it as far more serious than risks affecting other IPTs.

In order to assure that all risks be managed as effectively and efficiently as possible, all stakeholders in the project’s objective must be involved in the process of risk management. As soon as risks are identified, the Risk Manager identifies all the stakeholders in the risk and involves them in the assessment and action planning discussions. The Risk Manager elevates conflicts between IPTs arising from overlapping risks to the Risk Management Board for resolution.

3.3 Risk Management Tool

The Raytheon Prophet Excel risk management tool will be used on the Landover EMD Project to collect, analyze, and track risk information. This tool documents and tracks risk assessments and mitigation plans. It offers the data handling ease, graphics capability and full flexibility of Microsoft Excel, with tailorable field descriptions to help users understand the risk management process. It generates several reports for use in team meetings. This tool requires very little time in learning unique tool techniques.

The Prophet Excel database is accessible to EMD Project staff in a universally accessible location on a Landover host machine.

3.4 Risk Process Implementation

3.4.1 Risk Identification

Risk is the possibility of suffering loss or any issue that could cause deviation from the plan. Risk identification will be a topic in the IPT planning meetings and will be briefed to the Program Management Team in Daily Status Reviews. In addition to these meetings, risks can be raised by any project member for inclusion in the centralized risk database. There is no predefined number of risks that each team must or should document.

When a risk is identified, it is documented to the Risk Management Board using the Risk Nomination form shown in Appendix A. If a particular risk identified by an IPT also impacts other IPT(s), the team members from the other IPT(s) and/or the Risk Manager may support the generation of the risk input data. At the next scheduled RMB meeting, the RMB will review the risk identification data to determine if the risk is real and should be added to the project risk database. No assessment of the risk is required to be reviewed by the RMB.

To properly identify a risk the following data is required:

- **Task ID –** Field for grouping by task (i.e. 101, 105, EMOS, SYN, RDS, ESD**)**
- **Risk ID** – A number assigned by Risk Manager following project nomenclature (i.e. PM-001, CC-001, DPLY-001, COTS-001, SYN-001, EMOS-001, ESD-001)
- **Component ID –** Field for grouping by team following project nomenclature (i.e. PM, CC, COTS, DPLY, EMOS, SYN, RDS, ESD)
- **Risk Name** – Short description of the risk (1-5 words)
- **Risk Statement** – Concise description of the risk that can be understood, with a clear requirement for action. It is helpful to include ‘may’, ‘if’, or ‘then’. Composed of a statement and a consequence. The statement component of the Risk Statement is a single phrase or sentence that briefly describes the key circumstances, situations, or source of concern, doubt, or uncertainty. The consequence is a single phrase or sentence that briefly describes the potential outcome(s) of the source of concern.
- **Responsible Team** – IPT that is most affected by the identified risk.

- **Originator** – Person or team that identifies the risk

  Owner – Person or team accountable for implementing the mitigation plan and tracking its progress (e.g., IPT lead)

- **Interdependencies –** impacts that may result to other components, IPTs, etc

When identifying risks it is important to understand when to consolidate or split risks. Use the following guidelines to assist in achieving uniformity across teams:

- More than one team has accountability for some aspect of the risk
- Different mitigation plans are probably needed
- More than one scenario could occur, and their assessments would differ

3.4.2 Risk Assessment

Once a risk is identified the originating IPT is required to perform an initial assessment of the risk based on their knowledge of the risk. The IPT shall use the Risk Nomination Form to document their assessment. An assessment of the risk is preferred at the initial review by the RMB, but not required. The assessment may follow the initial review by the RMB if the risk is approved to be added to the database or if the RMB requires an assessment to make that decision.

The risk assessment will be reviewed by the RMB to determine if the risk is real and the IPT's assessment is accurate from a project impact perspective. Adjustments to the IPT's assessment may be requested by the RMB. The risk data entered into the project risk database will represent the consensus of the RMB and the IPT.

The data required to properly assess each risk is as follows:

Probability (Pi): The likelihood of the unwanted event occurring (0.1-0.9). See Appendix A for the project-level probability criteria for the EMD Project.

Consequence (Ci): The severity of the impact of the unwanted event on the project (1-9). See Appendix A for the project-level consequence criteria for the EMD Project.

Risk Factor (Ri): Pi x Ci, High = Ri > 5.5, Medium = Ri = 2.5 – 5.49, Low = Ri < 2.5

Assessor: The person who performs the risk assessment.

Assessment Date – Essential for reassessments (i.e. 10-20-2003)

Assessment Rationale: Reasoning or justification of the risk assessment or risk reassessment.

Cost Impact (optional): Financial consequence of the unmitigated risk on the project.

Each risk will be initially assessed for probability of occurrence (Pi), and consequence (Ci) by the IPTs. Once the probability and consequence assessment has been determined, the risk can be plotted on a Probability versus Consequence Chart as shown in Figure 3.3. This chart has predetermined regions for High, Medium, and Low risks. These regions, or risk levels, are determined by threshold levels, which are represented by values of the composite risk exposure. The composite risk exposure is calculated by multiplying the Probability and the Consequence assessment values (Ri = Pi x Ci). The subscript (i) in each case is used to show the values associated with an individual risk that is being tracked and managed by one of the teams.

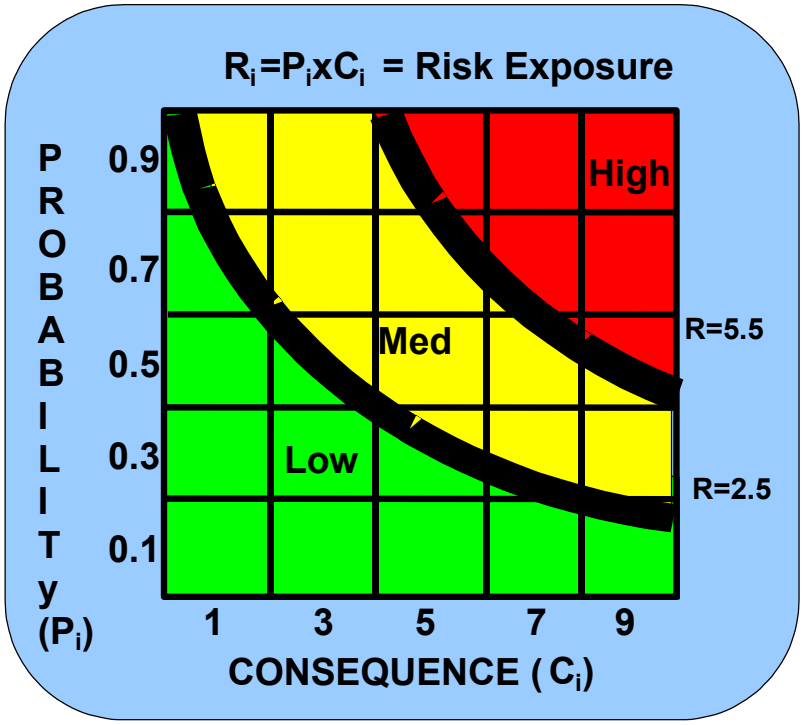

Figure 3-3. Probability vs Consequence Chart

The risk exposure is used to determine the level of each risk and course of action for the IPT. The risk level is designated as High, Medium, or Low with each level's thresholds determined by the value of the risk exposure as shown in Figure 3.3. The risk exposure will be used to prioritize or sort all the risks in the project database by descending risk exposure and to generate the Project Risk Report.

Table 3-1. IPT Actions for Each Risk Level

Risk Level	Risk Exposure	IPT Action Required	Handling Approach
High	Ri ≥ 5.5	Report assessment immediately to the Risk Management Board or Risk Manager. Start developing mitigation or contingency plans immediately and report them at the next scheduled RMB meeting.	Implement new processes or change baseline plans
Medium	2.5 ≤ Ri ≤5.49	Report assessment to Risk Management Board at next scheduled RMB meeting. Develop mitigation/contingency plans in line with the timing of the risk.	Aggressively manage: consider alternative process
Low	Ri ≤ 2.49	Report assessment to Risk Management Board at next scheduled RMB meeting. Mitigation/contingency planning to be decided by RMB based on potential program impact.	Monitor

3.4.3 Risk Mitigation

Once risks are assessed and prioritized, a handling approach is decided. Risk owners usually have the greatest knowledge of a particular risk and therefore are responsible for proposing the risk handling strategy and control requirements for it. Each risk will have a risk handling strategy selected from one of the following options:

Raytheon Six Sigma – initiate a Raytheon Six Sigma project to close the risk gap.

Eliminate or Avoid – act to avoid the risk or eliminate the risk by changing the requirements to acceptable levels.

Transfer – Transfer the risk to a party who has more control over the risk area such as another project or department.

Prevent – Monitor progress to ensure there are no trends indicating a potential problem.

Accept or Assume – Very low risk or cost of reduction/mitigation outweighs possible impact.

Reduce or Mitigate – Reduce the impact of the risk or take measures to reduce the chances of the risk occurring by planning and implementing one or more tasks to lessen the likelihood of the risk occurring or reduce the impact on project performance if it occurs.

Reserves – Utilize reserves (funding, schedule slack, or design margins) to reduce the risk.

3.4.4 Risk Mitigation Planning and Implementation

For each risk in the project risk database that requires a mitigation plan, the appropriate IPT develops the plan using one or more mitigation strategies. As the IPTs meet with their team members on a weekly basis, they explore issues and potential solutions in a team environment, thereby allowing the team to converge on the most effective risk mitigation or contingency plans The teams are empowered to implement mitigation plans that fall within their responsibilities. A

risk and resulting mitigation plan will be elevated to the RMB or higher if their budgets, schedule, or performance are negatively affected.

The specific activities developed to mitigate risks can be documented on the Risk Nomination Form for approval by the RMB. Once approved, the mitigation activities are entered into the project risk database. Start/finish dates and weighting factors for each activity are required data entries.

The weighting factor assigns a percentage of the total risk that is to be mitigated by that particular mitigation activity. Multiple activities for a particular risk are encouraged. In the case of multiple mitigation activities associated with a particular risk, the total weight associated with the activities must not exceed 100. A total weight of less than 100 represents a partial mitigation of a risk.

When a mitigation plan is implemented, the activities will be added to the appropriate IPT's schedule. The IPT then performs any necessary re-planning of budget, personnel allocation, or schedule and presents the re-plan to the Program Manager for approval. These activities are later tracked through the normal progress tracking mechanisms. Subsequent detailed scheduling, mitigation, and reporting activities become the responsibility of the IPT.

In addition to reporting progress of the risk mitigation activities, the IPT will report progress in mitigating the risk—that is, the actual success of the planned activities in reducing the cost impact to the project. This means regular re-assessment of the risk. Effective mitigation should lower the probability or impact of a risk, which is evaluated at regular re-assessments. The effectiveness of risk mitigation activities will be evaluated at regular intervals and reported back to the project teams and program management. Mitigation activities that are not achieving the desired results will be re-evaluated. Changes, corrections, or new mitigation activities will be established and implemented.

3.4.5 Contingency Planning

Risks that could have a very severe impact on the project should have **both** mitigation plans and contingency plans. A contingency plan is an alternate course of action that could be taken if the mitigation plan fails to adequately reduce the risk impact or if the risk is not feasible to mitigate. Contingency plans shall be required for all "High" risks, and are encouraged for risks that have a high consequence and low probability, or where contingencies are easily identified. Contingency plans will be entered and maintained in the project risk database. The specific criteria or date required to proceed with the contingency plan shall be included in the database. The RMB shall decide if the contingency plan is required or should be implemented.

3.5 Risk Monitoring

3.5.1 Risk Baseline

To provide a reference for reporting risk progress, risk data on EMD will be baselined by December 1, 2003.

3.5.2 Reports

The Risk Manager will prepare reports for the IPTs that are associated with each step of the risk management process. The program risk database shall be updated after each monthly RMB and the specific reports requested provided to each IPT and project management. The typical reports generated include the following:

- Identify Risks

- **Risk List** – Alphabetical listing of risks in the database without regard to priority.

- Assess and Prioritize Risks

- **Risk Watchlist** – Prioritized listing of risks in the database and their corresponding assessment data. Risks are ranked from highest risk exposure value to lowest.

- Develop and Implement Handling Approaches, Track Risks

- **Detail Report** – Listing of all the mitigation activities or contingency plans associated with each risk in the database.

3.5.3 Risk Re-assessment

Risks will be re-assessed by the responsible IPT whenever events occur that affect either the probability of occurrence or the potential impact/consequence. To ensure that risk assessments remain current, all open risks will be reviewed by the IPTs **monthly**. Any changes to the previous month's assessments will be presented to the RMB at the next regularly scheduled meeting.

3.5.4 Risk Retirement

Risks will never be deleted from the project risk database. Instead, they may be retired with the approval of the RMB and the Program Manager. A retired risk is a previously identified risk that no longer poses a threat to the project (probability or consequence =0) or is assumed/realized on the project (probability=1). Retired risks will not be reported, but their history and rationale will be maintained in the database. The Program Manager is responsible for incorporating any impact of a realized or assumed risk into the project Estimate to Complete (ETC).

3.6 Training Requirements

Each IPT member should review the EMD Risk Management Plan to understand how risk management will be implemented on the EMD Project. After review of the EMD Risk Management Plan, any remaining questions should be directed to the Risk Manager or Program Manager. The Risk Manager will have access to the User Manual for the tool for self-training.

4. Disaster Planning and Recovery at the EMD Contractor Facility

The Raytheon Landover Maryland facility has the infrastructure (e.g., diesel generators) necessary to sustain operations during emergency situations. Raytheon maintains an Automated Information System Disaster Recovery Plan. Clear roles and responsibilities are assigned for emergency preparedness and emergency response activities. All data on EMD-related computer systems is incrementally backed up daily with full backups performed weekly. Backups are stored offsite on a rotating basis. System restore tests are periodically performed to verify the integrity of the backup process.

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Appendix A – Risk Forms & Criteria

- Risk Nomination Form
- Project Probability of Occurrence Criteria
- Project Level Consequence Criteria

Risk Nomination Form

Originator: **Component ID:** **Task ID:** **Risk ID:**

Owner: **Interdependencies:**

Component ID:

☐ Custom Code	☐ CM	☐ Contracts	☐ COTS	
☐ DAAC	☐ DM	☐ Deployment	☐ EMOS	☐ ESD
☐ LEPG	☐ Infrastructure	☐ Installation	☐ PC	☐ PM
☐ QA	☐ RDS	☐ Supply Chain	☐ SEIT/ARB	☐ Synergy
☐ TEST	☐ Other ____			

Ci:

Criteria	Value
Project jeopardized	9
Project success in doubt	7
Limited impact on project	5
Minor impact on project	3
No impact on project	1

See criteria table in plan for detailed descriptions of criteria

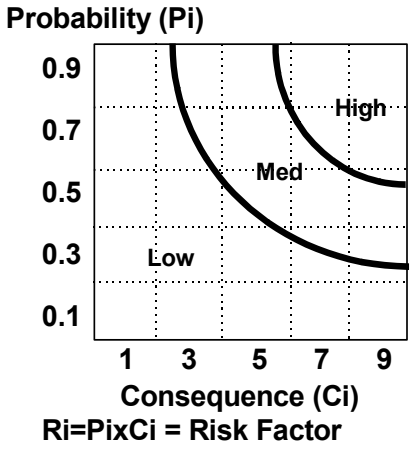
Ci:

Pi:

Criteria	Prob.	Value
Almost certain	90%	0.9
Highly likely	70 %	0.7
Likely	50 %	0.5
Not likely	30 %	0.3
Small possibility	10 %	0.1

See Criteria Table in plan for detailed descriptions of criteria

Pi:



Risk Name: **Ri:**

Risk Statement: **Cost Impact ($K):**

Assessment Date:

Assessment Rationale:

Handling Approach:

Person Responsible	Mitigation Task	Cost to Implement Task	% of Total Risk	Start Date	Finish Date

Table A-1. Project Level Probability of Occurrence Criteria

0.9 (90%)	Negative outcome is almost certain. Indicators: Current approach and processes cannot mitigate this risk; State-of-the-art technology; System is very complex; Success highly dependent upon developmental activity beyond project span of control; Issue is not well understood
0.7 (70%)	Negative outcome is highly likely. Indicators: Current approach and processes are not well documented; Technology available but not validated; Significant design, software coding, and/or validation efforts required; Complexity above normal; Success dependent upon developmental activity beyond project span of control
0.5 (50%)	Negative outcome is likely. Indicators: Current approach and processes are partially documented; Unvalidated technology has been shown to be feasible by analogy, test, or analysis, but requires moderate redesign or validation efforts; Moderate complexity; Moderately dependent upon activity beyond project span of control
0.3 (30%)	Negative outcome is not likely. Indicators: Current approach and processes are well understood and documented; Most of system technology has been validated; Some components require minor redesign/modification or validation efforts; Minor complexity; Some dependency upon activity beyond project span of control
0.1 (10%)	Negative outcome is not likely. Indicators: Current approach and processes are well understood and documented; Insignificant alternations, or off-the-shelf hardware, software and test equipment; independent of separate projects, subcontractors, or customer; Assessment relies on evidence or previous experience to bolster confidence

Notes:

1) The assessor is not restricted to only the odd numbers, even numbers may be used
2) The probability criteria have been tailored to apply across all IPTs in an attempt to normalize risk assessments throughout the project and minimize changes to the initial IPT assessments by the RMB.

Table A-2. Project level Consequence Criteria

Risk Level	Technical	Cost	Schedule
High (Ci=9) Project success jeopardized	Project Technical requirements cannot be achieved; Performance unacceptable; No alternatives or solutions exist	Project budget impacted by => 10%; NRE, production unit cost, or O&S cost exceeded by => 25%	Key Project milestone would be late by > 2weeks; Development schedule exceeded by => 25%
Significant (Ci=7) Project success in doubt	Performance unacceptable; Significant changes required	Project budget impacted by 5-10%; Project reserves (technical, schedule, cost) must be used to implement workarounds); NRE, production unit cost, or O&S cost exceeded by 15 - 25%	Critical path activities => 1 month late; Workarounds would not meet Project milestones; Development schedule exceeded by 15-25%
Moderate (Ci=5) Limited impact on Project success	Performance below requirements; Moderate changes required; Workarounds would result in acceptable system performance	Project budget impacted by 1-5%; Project reserves (technical, schedule, cost) do not need to be used to implement workarounds); NRE, production unit cost, or O&S cost exceeded by 5-15%	Non-critical path activities => 1 month late; Workarounds would avoid impact on critical path; Development schedule exceeded by 5-15%
Minor (Ci=3) Minor impact on Project success	Performance below goal but within acceptable limits; Minor changes required	Project budget impacted by => 1%; Project reserves (technical, schedule, cost) do not need to be used to implement workarounds); NRE, production unit cost, or O&S cost exceeded by 1-5%	Non-critical path activities late; Workarounds would avoid impact on key and non-key Project milestones; Development schedule exceeded by 1-5%
Low (Ci=1) No impact on Project success	Performance goals met; No changes required	Project budget not dependent on the issue; NRE, production unit cost, or O&S cost not exceeded or not dependent on the issue	Schedule not dependent on the issue; Development schedule not exceeded or not dependent on the issue

Notes:

1) Enter the Ci associated with the maximum assessment across technical, cost, and schedule

2) The consequence criteria have been tailored to apply across all IPTs in an attempt to normalize risk assessments throughout the project and minimize changes to the initial IPT assessments by the RMB.

Abbreviations and Acronyms

Ci	Consequence
CPT	Cross-Product Team
DSR	Daily Status Review
EMD	ECS Maintenance and Development
ETC	Estimate to Complete
IPT	Integrated Product Team
Pi	Probability
PMR	Program Management Review
Ri	Risk Factor
RMB	Risk Management Board

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